Stage 1: Integrate significant concept, area of interaction and unit question

Area of interaction focus
Which area of interaction will be our focus? Why have we chosen this?

- Human Ingenuity

Significant concept(s)
What are the big ideas? What do we want our students to retain for years into the future?

The model of an atom is entirely a mathematical perception.

At the end of the course, students can address the following issues:How do I know? How does an atom look like? How do I communicate that all the particles in atoms do not stay in the same place?What tools can I use to understand the electronic distribution of various elements? Why and how do we create the model of an atom, if none has seen it? What are the consequences if you have perceived it wrong? How do I know that the atom I am visualising,looks exactly the same?

MYP Unit Question

What is the structure of an atom?

Assessment

What task(s) will allow students the opportunity to respond to the unit questions?
What will constitute acceptable evidence of understanding? How will students show what they have understood?

Worksheet.
Formative: Written Report
Students will be given a worksheet on Friday 15.07.2011 to assess their understanding of the present concept of an atom.

MYP Objectives

Which specific MYP objectives will be addressed during this unit?

MYP: Sciences (For use from Sept. 2010/Jan. 2011), MYP Year 5, A One world
At the end of the course, students should be able to:

- explain the ways in which science is applied and used to address specific problems or issues
- discuss the effectiveness of science and its application in solving problems or issues
- discuss and evaluate the moral, ethical, social, economic, political, cultural and environmental implications of the use of science and its application in solving specific problems or issues.

MYP: Sciences (For use from Sept. 2010/Jan. 2011), MYP Year 5, B Communication in science

At the end of the course, students should be able to:

- use scientific language correctly
- use appropriate communication modes such as verbal (oral, written), visual (graphic, symbolic) and communication formats (laboratory reports, essays, presentations) to effectively communicate theories, ideas and findings in science
- acknowledge the work of others and the sources of information used by appropriately documenting them using a recognized referencing system.

MYP: Sciences (For use from Sept. 2010/Jan. 2011), MYP Year 5, C Knowledge & understanding of science

At the end of the course, students should be able to:

- recall scientific knowledge and use scientific understanding to construct scientific explanations
- apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations
- critically analyse and evaluate information to make judgments supported by scientific understanding.

IB Expectations/ Assessment Criteria

Which MYP assessment criteria will be used?

MYP: Sciences (For use from Sept. 2005/Jan. 2006), MYP Year 5, Assessment Criteria

Criterion A: one world

- The student explains how science is applied to addressing a specific local or global issue.
- The student explains some of the benefits and limitations of science in solving the issue.
- The student discusses how science and its applications interact with some of the following factors: social, economic, political, environmental, cultural and ethical.

Criterion B: communication in science

- The student communicates scientific information effectively using scientific language correctly.
- The student presents all the information appropriately using symbolic and/or visual representation accurately according to the task.
- The student acknowledges sources of information appropriately.

Criterion C: knowledge and understanding of science

- The student explains scientific ideas and concepts and applies scientific understanding to solve problems in familiar and unfamiliar situations.

- The student analyses and evaluates scientific information by making scientifically supported judgments about the information, the validity of the ideas or the quality of the work.

Criterion D: scientific inquiry

- The student defines the purpose of the investigation, formulates a testable hypothesis and explains the hypothesis using scientific reasoning.
- The student identifies the relevant variables and explains how to manipulate them.
- The student evaluates the method commenting on its reliability and/or validity.
- The student suggests improvements to the method and makes suggestions for further inquiry when relevant.

Stage 2: Backward planning: from assessment to the learning activities through inquiry.

Content

What knowledge and/or skills (from the course overview) are going to be used to enable the student to respond to the guiding question?
What (if any) state, provincial, district, or local standards/skills are to be addressed?
How can they be unpacked to develop the significant concept(s) for stage 1?

The students will know the atomic timeline.
The students will know the Atomic Number and Mass Number.
The students will know what are Isotopes.
The students will know about Atomic Orbitals.
The students will know about the electronic configurations.

The students will give the historical development of the atomic concept.
The students will define the Atomic and Mass Number.
The students will give examples of Isotopes.
The students will give the orbitals in the sublevels.
The students will write the electronic configuration of atoms.

Approaches to Learning

How will this unit contribute to the overall development of subject-specific and general approaches to learning skills?

- Communication The students will communicate,reflect and think about the subject so that learning skills will develop.

- Reflection
- Thinking

Learning Experiences	Strategies / Activities / Differentiation
How will students know what is expected of them? Will they see examples, rubrics, templates? How will students acquire the knowledge and practise the skills required? How will they practise applying these? Do the students have enough prior knowledge? How will we know?	How will we use formative assessment to give students feedback during the unit? What different teaching methodologies will we employ? How are we differentiating teaching and learning for all? How have we made provision for those learning in a language other than their mother tongue? How have we considered those with special educational needs?
Questioning, demonstrating, explaining and quizzing.	Basics questions will be asked to gauge the prior knowledge of students on structure of atom. Students will be grouped in fours and asked to answer a few questions related to the topic. Definitions will be given and explained. Activity Students will come to the board and match the words with the definition which will be placed on two columns randomly. Teacher will teach the lesson and encourage note taking.Students will be given opportunities to clarify doubts.

Resources

What resources are available to us?
How will our classroom environment, local environment and/or the community be used to facilitate students' experiences during the unit?

Ongoing reflections and evaluation

Unit Reflections

In keeping an ongoing record, consider the following questions. There are further stimulus questions in the unit planning section of *MYP: From principles into practice.*

Students and teachers

What did we find compelling? Was our disciplinary knowledge/skills challenged in any way?
What inquiries arose during the learning? What, if any, extension activities arose?
How did we reflect - both on the unit and on our own learning?
Which attributes of the learner profile were encouraged through this unit? What opportunities were there for student-initiated action?

Possible connections
How successful was the collaboration with other teachers within my subject group and from other subject groups?
What interdisciplinary understandings were or could be forged through collaboration with other subjects?

Assessment
Were students able to demonstrate their learning?
How did the assessment tasks allow students to demonstrate the learning objectives identified for this unit? How did I make sure students were invited to achieve at all levels of the criteria descriptors?
Are we prepared for the next stage?

Data collection
How did we decide on the data to collect? Was it useful?